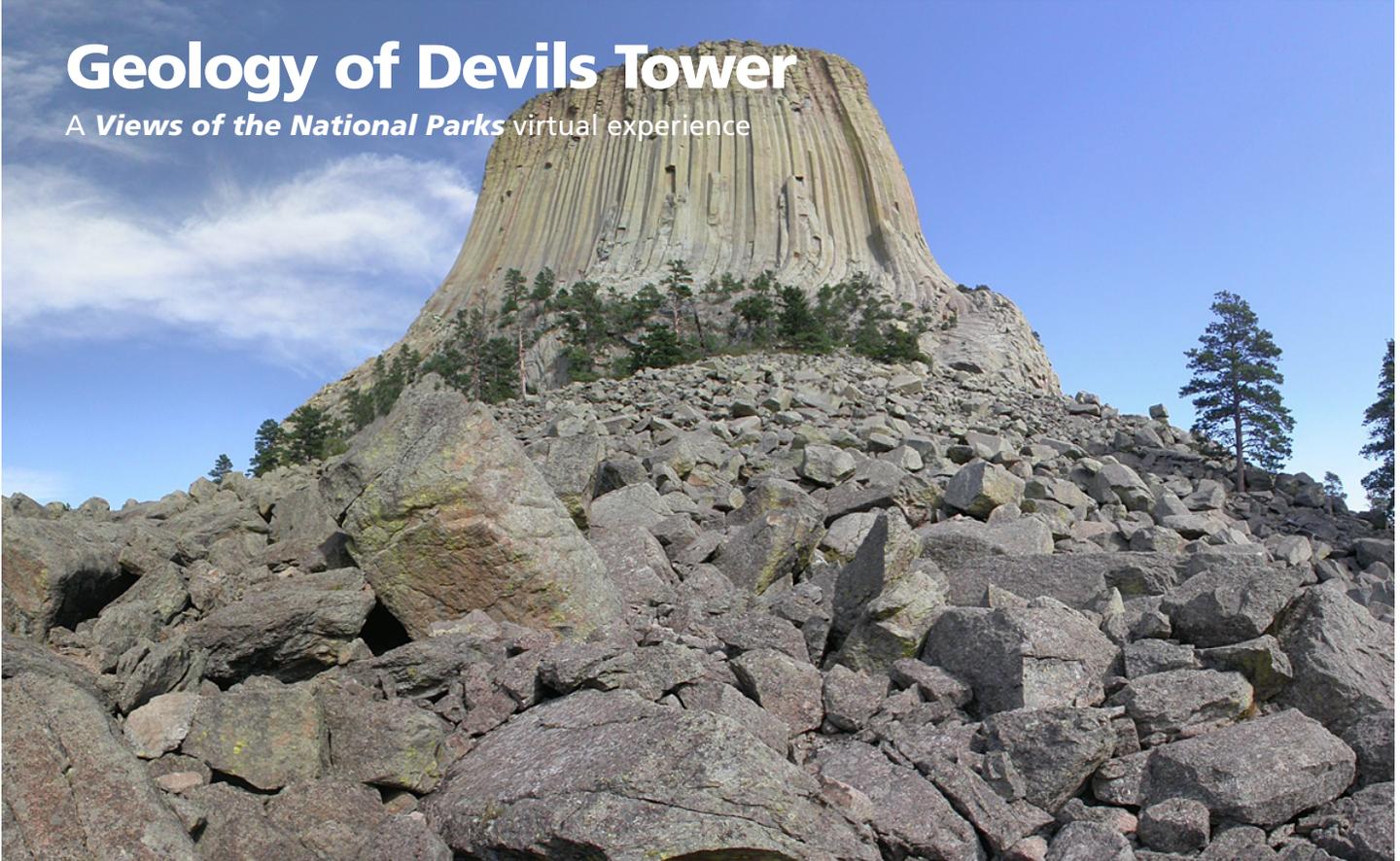




Geology of Devils Tower

A *Views of the National Parks* virtual experience



Rising high above the Belle Fourche River, grasslands, and ponderosa pine forests, Devils Tower commands attention. This monolith has long been a beacon attracting people and capturing their imaginations since prehistoric times. Today, it continues to hold many meanings for people including American Indians, local ranchers, rock climbers and thousands of visitors from near and far.

President Theodore Roosevelt proclaimed Devils Tower as America's first national monument on September 24, 1906. He declared the “lofty and isolated rock ... to be a natural wonder and an object of historic and great scientific interest.” With these words, President Roosevelt established the monument with the authority of the newly created Antiquities Act.

A dominant landmark of the Northern Great Plains, travelers can see the Tower from miles away. Many people wonder “How was it formed?” Hard and resistant to erosion, the Tower and the Missouri Buttes to the northwest are the result of

magma, molten rock, being forced up from below the earth's crust. Following fractures and weak spots, the molten rock moved upward. Approximately 50 million years ago, the magma pooled below the land surface where it slowly cooled under the weight and pressure of the surrounding sedimentary rocks. It is due to the process of erosion that we can see Devils Tower. Over time, ancient rivers washed away the sedimentary layers of rock, revealing the Tower. In fact, President Roosevelt called the Tower “an extraordinary example of the effects of erosion.”

This virtual experience will explain these processes, describe the role each played in the formation of Devils Tower, and show you how today's geology offers clues to the past. If the Tower is interesting from a distance, it is fascinating when you get close. Come and explore the geological story of Devils Tower.

While learning about the geology of Devils Tower, discover why sedimentary rocks are important in this story, how to identify the igneous rock that forms the Tower by its sound, and why the upper and lower portions of the Tower look different.

Devils Tower, a monolith made of igneous rock, commands attention due to many symmetrical joint columns. At 867 feet high, it is the dominant landmark in the northern Great Plains.

— General Management Plan, 2002
Devils Tower National Monument

Geology of Devils Towers explores the various geologic events that have led to the impressive scene you can experience today.



Features

Geology of Devils Tower explores the rock formations and geologic processes that make Devils Tower National Monument such a unique and important geologic feature.

Here are some of the highlights of the major features you will explore in this virtual experience.

- **Overview**
Presents the general geologic setting and the major geologic events which created the Tower. Begin your journey here to learn the “big picture.”
- **Sedimentary Rocks**
Explores how sedimentary rocks are formed and which ones are found in the area surrounding Devils Tower. Listen to NPS interpreters as they take you on a tour of ancient environments and show you the present - day rocks that formed during those ancient times.
- **Igneous Rocks**
Examines the basic concepts of the formation and the characteristics of igneous rocks. Learn about three different geologic hypotheses of how the Tower formed and explore how the distinctive hexagonal columns were created.
- **Erosion**
Examines the role of erosional forces in the creation of Devils Tower and how these forces continue to reshape the monument we see today. Learn how mountain-building, regional uplift, and the erosional

power of the Belle Fourche River fit into the Tower story. Listen to park rangers as they explain the topography that we see today.

Teacher Resources

The teacher resource center presents a series of activities, linked to national teaching standards (K-4th Grade), which offer hands-on lessons dealing with the geologic principals presented in this *Views* module.

Partners

This module was developed in cooperation with the staff members of Devils Tower National Monument, Dr. Jan Gillespie (California State University Bakersfield), Angie Butts and Carla Livingston (Crook County Schools), and the *Views of the National Parks* program of the Natural Resource Program Center.

Contact us

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...the lofty and isolated rock known as 'Devils Tower', situated upon the public lands owned and controlled by the United States is such an extraordinary example of the effect of erosion in the higher mountains as to be a natural wonder and an object of historic and great scientific interest and it appears that the public good would be promoted by reserving this tower as a National Monument...

— Presidential Proclamation
September 24, 1906

Visit Devils Tower National Monument:
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